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Evaluation of Serum Interleukin 36 in Pityriasis rosea Patients

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Abstract

Pityriasis rosea (PR) is a skin condition caused by the reactivation of human herpesvirus (HHV) 6 and/or HHV-7 throughout the body. In most cases, a single erythematous plaque (herald patch) appears first, followed by lesser lesions along the trunk's cleavage lines two weeks later (Christmas tree distribution). The typical period is about 4 weeks, however this might vary. This research set out to determine the prevalence of Pityriasis rosea and its associated symptoms. There were 40 Pityriasis rosea patients in this research. Patients who visited the Dermatology and Andrology Outpatient Clinic at Benha University Hospital anytime between September 2021 and March 2022 were eligible for selection. Benha Faculty of Medicine's Research Ethical Committee gave their clearance to this project (MS 30 /2 /2020). In order to better understand Pityriasis rosea, this research aimed to quantify its prevalence and characterise its clinical manifestations. Our research showed that 14 (35.0%) patients experienced PR as a result of post-viral respiratory tract infections, 12 (30.0%) experienced PR after purchasing and wearing new clothing, 8 (20%) experienced PR as a result of psychological factors, 4 (10%) experienced PR during pregnancy, and 2 (5.0%) experienced PR after experiencing an insect bite. Two of our patients (5.0%) had a family history of disease. Six patients, or 15%, had some kind of connection to Covid 19. Twenty percent of herald patches were located on the back and thighs, ten percent on the trunk, five percent each on the abdomen, chest, face, knee, loin, neck, and upper limb. The average patch was 3.62 0.81 inches in diameter, with 61.1% having an oval shape with peripheral scales and 38.9% having a rounded shape and peripheral scales. The time (in days) between a herald patch and a widespread eruption may be as long as 16 years (mean 10.90 years). The majority of patients, it was determined, had recently purchased clothing and a history of upper respiratory tract infections. The positive family history rate was 5.0%. There were COVID 19 infections in 15.0% of people, which may cause PR, and 20.0% of people had patches on their backs or thighs.

Key words: Pityriasis rosea, Clinical Characteristics.

1. Introduction

Pityriasis rosea is an acute self-limiting illness with a characteristic skin eruption and mild constitutional symptoms; it mostly affects children and young adults and has a likely infectious aetiology. The incidence rate is predicted to be 170 per 100,000 people per year. Seasonal shifts are possible in mild areas [1].

Patients with brown or dark skin might have a very different look from those with light skin when it comes to pityriasis rosea. Gray, dark brown, or even black might describe the colour of the herald patch and the subsequent spreading rash. After the lesions fade, you could see patches of hypopigmentation or hyperpigmentation [2].

The herald patch, often located on the thigh, upper arm, trunk, or neck, is the first sign of the illness and is bigger and more noticeable than the lesions of the later eruption. In very rare cases, the herald patch might manifest anywhere on the body, including the skin of the face, scalp, genitalia, hands, and feet. [1]

There is no need for therapy since the lesions will heal on their own in around 6 weeks. Use emollients to keep the skin from drying out. Pruritus may be treated with calamine lotion and antihistamines. Oral erythromycin 250 mg four times a day has been demonstrated in recent studies to provide full remission in 2 weeks [3].

In order to better understand Pityriasis rosea, this research aimed to quantify its prevalence and characterise its clinical manifestations.

2. Patients and Methods

Patients:

This case control study included 40 patients suffering from Pityriasis rosea. They were selected from those attending the Outpatient Clinic of the Dermatology & Andrology Department, Benha University Hospital within six months during the period from September 2021 till March 2022.

This study was approved by the Research Ethical Committee of Benha Faculty of Medicine (MS 30 /2 /2020) .

Ethical consideration:

Before taking blood samples, an informed consent was taken from each patient.

Inclusions criteria:

All patients enrolled in the study were:

1. Clinically typical Pityriasis rosea lesions.
2. Different degrees of severity of Pityriasis rosea.

Exclusion criteria:

- Any participant presented with any other dermatological conditions or any psychiatric disorders was excluded from the study.

Methods:

All patients will be subjected to the following:

1. **An informed consent**:

It was taken before the start of the study. No risks were foundand any unexpected risk appearing during the study were cleared to the patients and the committee on time. All the records were confidential. The results of this study was used only for scientific purposes. The participation was voluntary, and the patients can

discontinue participation at any time without penalty or loss of benefits.

2. **Complete history taking:**
   - Onset, course & duration .
   - History of any systemic diseases eg; liver diseases, diabetes mellitus hyperlipidemia or hypertension.
   - History of any psychiatric disorders.
   - History of drug intake.
3. **General examination.**
4. **Local examination.**

Local clinical examination of Pityriasis roseapatients regarding site, distribution, severity, and duration.

Pityriasis rosea Severity score (PRSS):

For the evaluation of the distribution and severity of the disease, we used the PRSS, which was developed based on the Pityriasis rosea Severity score. The two areas to determine PRSS were the head and trunk (t) and the upper and lower extremities (e).

The disease extent was evaluated using a 3-point scale (0=absence of lesions; 1=1 to 9 lesions; 2=10 to 19 lesions; 3≥20 lesions). Three target symptoms were identified to assess the severity of the lesions, namely erythema (E), infiltration (I), and scale (S), and evaluated on a 3-point scale with 0 being the complete lack of skin involvement and 3 being the strongest implication.

Notably, PRSS was calculated separately for the left and right sides of the body. The PRSS was calculated as follows: the sum of the severity score for the three primary signs multiplied by the numeric (N) of the disease's extent. This formula can be written as PRSS=Nt (Et+It+St) + Ne(Ee+Ie+Se).

Statistical Analysis:

Data were collected, revised, coded and entered to the Statistical Package for Social Science (IBM SPSS) version 20. The qualitative data were presented as number and percentages while quantitative data were presented as mean, standard deviations and ranges when their distribution found parametric.

The comparison between two groups with qualitative data were done by using ***Chi-square test*** and/or ***Fisher exact test*** was used instead of Chi-square test when the expected count in any cell was found less than 5.

The comparison between two independent groups with quantitative data and parametric distribution was done by using ***Independent t-test.***

The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant as the following:

$P > 0.05$ = non significant (NS).

$P < 0.05$ = significant (S).

$P < 0.001$ = highly significant (HS).

3. Results

Table (1); shows the Causes, as there were 14 (35.0%) patients with post respiratory tract infection, 12 (30.0%) patients with Wearing new clothes, 8 (20.0%) patients with Psychogenic factors, 4 (10.0%) patients with Pregnancy and 2 (5.0%) patients with Insect bite, and there were 2 (5.0%) Patient with Family history of Pityriasis rosea and 16 (40.0%)

Table (1) Distribution of the studied cases according to Family history of Pityriasis rosea, similar episodes and Causes

		Patient group	
		No.	**%**
Family history of Pityriasis rosea	No	38	95.0%
	Yes	2	5.0%
Similar episodes	No	24	60.0%
	Yes	16	40.0%
Causes	post respiratory tract infection	14	35.0%
	Wearing new clothes	12	30.0%
	Psychogenic factors	8	20.0%
	Pregnancy	4	10.0%
	Insect bite	2	5.0%

Table (2), Shows the Site of herald patches, 20% were Back and Thigh, 10% were Trunk and 5.0% were Abdomen, Below knee, Chest, Face, Knee, loin, Neck and Upper limb. For the Shape of patches, 61.1% were Oval with peripheral scales and 38.9% with Rounded with peripheral scales, the mean Size of patches were 3.62 ± 0.81.

Table (2) Distribution of the studied cases according to Site of herald patches, Size of patches and Shape of patches

		Patient group
		No.= 40
Site of herald patches	Back	8 (20.0%)
	Thigh	8 (20.0%)
	Trunk	4 (10.0%)
	Abdomen	2 (5.0%)

	Below knee	2 (5.0%)
	Chest	2 (5.0%)
	Face	2 (5.0%)
	Knee	2 (5.0%)
	Loin	2 (5.0%)
	Neck	2 (5.0%)
	Upper limb	2 (5.0%)
	No	4 (10.0%)
Size of patches (Cm)	Mean ± SD	3.62 ± 0.81
	Range	2.20 – 5
Shape of patches	Oval with peripheral scales	22 (61.1%)
	Rounded with peripheral scales	14 (38.9%)

Table (3), Shows the Duration between herald patch and generalized eruptions (days) ranged from 7 to 16 days (mean 10.90 days), Regarding the Pruritus severity, 50% were Mild, 5.0% were Moderate and 5.0% were Severe. For the Associated skin disease, 45.0% were Atopy, 15.0% with Acne vulgaris and 15.0% with Dermatitis, there were 6 (15.0%) Patient with Relation to covid and 2 (5.0%) Patient with Relation to Vaccine of covid and the mean PRSS were 20.98 ± 8.08.

Table (3) Distribution of the studied cases according to Duration between herald patch and generalized eruptions (days), Pruritus severity, Mucus membrane affection, Associated skin disease, Relation to covid and Relation to vaccine and PRSS.

		Patient group
		No.= 40
Duration between herald patch and generalized eruptions (days)	Mean ± SD	10.90 ± 2.71
	Range	7 – 16
Pruritus severity	Mild	20 (50.0%)
	Moderate	2 (5.0%)
	Severe	2 (5.0%)
	No itching	16 (40.0%)
Mucus membrane affection	No	40 (100.0%)
Associated skin disease	Atopy	18 (45.0%)
	Acne vulgaris	6 (15.0%)
	Dermatitis	6 (15.0%)
Relation Covid	No	10 (25.0%)
	No	34 (85.0%)
	Yes	6 (15.0%)
Relation to Vaccine of Covid	No	38 (95.0%)
	Yes	2 (5.0%)
PRSS	Mean ± SD	20.98 ± 8.08
	Range	3 – 35

4. Discussion

Based on our data, we know that 14 (35.0%) patients had PR as a consequence of: After respiratory tract illness; Wearing new clothing; Psychogenic variables; Pregnancy; Insect bites; and 4 (10.0%) patients.

BCG vaccine, insect bites, minor skin infections, old scars, injection sites, and scars all have the potential to show the PR. In addition, it was hypothesised that wearing either freshly unwashed garments or garments that had been sitting in dirt for a while may spread the sickness [4].

In addition, [5] found that a majority of patients reported recently contracting an illness of the digestive system, respiratory system, or both.

Two of our patients (5.0%) had a family history of disease.

A favourable family history was present in 38.3% of patients, as reported by [6]. A hereditary predisposition is implied by these findings.

Positive family history was reported at 34.1 percent by [7] and 31.1 percent by [8]. Patients with a positive family history accounted for 21.1% of instances, [9] found, and this was most common among first-degree relatives. These instances manifested at a younger age, persisted for longer periods of time, and recurred more often than average.

Six patients, or 15.0% of the sample, tested positive for a previous Covid 19 infection.

Prodromal symptoms were found to occur in 59.6% of patients, according to a study by [5]. In the academic literature, this rate is far greater. The increased frequency provides further evidence that viral infections have a role in the genesis of PR [10].

It has been speculated that many different things, including viruses, autoimmunity, psychological state, and other medicines, may set off PR [11].

Previous investigations focused on HHV-6 and HHV-7 viral infections, but it was hypothesised that other bacterial, viral, and fungal infections may also produce PR [12].

Twenty percent of herald patches were located on the back and thighs, ten percent on the trunk, five percent each on the abdomen, chest, face, knee, loin, neck, and upper limb. Mean patch size was 3.63 0.83, and 61.1% were oval with peripheral scales, while 38.9% were rounded.

Eighty percent of those with heraldic patch have it on their neck or trunk. 5.5% of instances had two or more heraldic patches [13].

Kilinc et al. [14] discovered herald patches in 77.7% of atypical cases and several herald patches in 11.1% of patients.

According to Afshar et al. [15] and Kuruvilla et al. [6], the trunk was the most impacted area.

African-American children were shown to have a higher prevalence of the papular type and facial involvement by Amer et al. [16] and Vano- Galvan et al. [17]. Patients with this condition also often experience extreme pruritus.

Kilinc et al. [18] reported 5 (18.5%) individuals with papular lesions, while Sharma and Srivastava [10] observed 11 patients with papular PR in their research of 200 patients with PR in India. All five patients reported mild pruritus, and three lesions were confined to the trunk, one to the extremities, and one to both. Three patients were found to have plaque medallions. In addition, pustular lesions were seen in one patient. Patients often had a limited number of lesions that were confined to the face, neck, dorsum of the hands and feet, arms, thighs, and groynes.

The authors Singh et al. [19] and Miranda et al. [20] described two individuals who had vesicular lesions not only on the trunk but also on the palms and soles.

Our results showed that the time (in days) between the appearance of the herald patch and the onset of widespread eruptions was on the order of 7-16 years (mean = 10.90 years).

Reports of the occurrence of herald patches (HP) vary widely between 40% and 76%. (21). HP was found to be rather common (76.9%) in a research by Ozyürek et al. Within 10 days following HP, secondary eruptions developed in 62.5% of patients in the research by Sharma et al., (10) and in 87.5% of patients in the study by Ozyürek et al., (5, 6).

About 45.0 percent of our patients also have atopy, whereas 15.0 percent have acne vulgaris, and 15.0 percent have dermatitis.

Researchers Hussein et al. [22] found that compared to normal skin, lesional skin from people with ACD, AD, and PR had considerably higher numbers of immune cells, as determined by immunohistochemistry. In the damaged skin, CD3 (+) T lymphocytes and CD68 (+) cells (histiocytes) make up the bulk of the immune system. CD20 (+) cell counts were found to be greater in PR than in ACD and AD, although the differences were not statistically significant.

5. Conclusion

The vast majority of patients presented with a history of respiratory tract illness and were wearing brand new garments. The positive family history rate was 5.0%. Factors of PR may have been activated in 15.0% of those who had COVID 19. Back and thigh patches accounted for 20%.

References

[1] C.Griffiths, J.Barker, T.Bleiker, R.Chalmers, & D.Creamer, (Eds.), Rook's textbook of dermatology. John Wiley & Sons,vol.9.pp.30-50,2016.

[2] P.Buttaravoli, & S.Leffler, M. (Eds.). Minor Emergencies E-Book: Expert Consult-Online and Print. Elsevier Health Sciences,vol.4.pp.60-70,2012.

[3] Z.Zaidi, K.Hussain, & S.Sudhakaran, Treatment of Skin Diseases: A Practical Guide. Springer,vol.7.pp.22-44,2018.

[4] Z. Slebioda, E. Szponar, A.Kowalska, Recurrent aphthous stomatitis: genetic aspects of etiology. Postep Derm Alergol,vol.30.pp.96–102,2013.

[5] GD. Ozyürek, S. Alan, E.Cenesizoğlu, Evaluation of clinico-epidemiological and histopathological features of pityriasisrosea. Postepy Dermatol Alergol.Aug,vol.31.pp.216-21,2014.

[6] M. Kuruvilla, GS. Rao, P. Kumar , V. Vinod, Clinico-epidermiological studies on tineaversicolor, Indian J DermatolVenereol Leprol,vol.68.pp.208-999,2002.

[7] SM. Kambil, A Clinical and Epidemiological Study of PityriasisVersicolor. Int J Sci Stud,vol.5.pp.155-159,2017.

[8] R. Snekavalli, R. Madhu, A. Ramesh, C. Janaki R. Dhanalakshmi, Clinico epidemiological and mycological study of pityriasisversicolor. Int J Res Med Sci,vol.6.pp.1963-1970,2018.

[9] S. He, W. Du, S. Yang, The genetic epidemiology of tineaversicolor in china. Mycoses, vol.51.pp.55-62,2008.

[10] L. Sharma, K. Srivastava, Clinicoepidemiological study of pityriasisrosea. Indian J DermatolVenereolLeprol,vol.74.pp.647–649,2008.

[11] M. Polat, O. Uzun, I. Ors, C. Boran, Pityriasisrosea-like drug eruption due to bupropion: a case report. Hum ExpToxicol,vol.33.pp.1294–1296,2014.

[12] F. Guarneri, SP. Cannavo, PL. Minciullo, S.Gangemi, Pityriasisrosea of Gibert:

immunological aspects. J EurAcadDermatolVenereol,vol.29.pp.21–25,2015.

[13] DD. Balci, S.Hakverdi, Vesicular pityriasisrosea: an atypical presentation. Dermatol Online J,vol.44.pp.14-16,2008.

[14] P.Kilinc, M.Fadime, K.Akbas, U.Ayse, D.Sener, L.Sertac, F.Aktaş, O.Akın, Atypical pityriasisrosea: clinical evaluation of 27 patients. Cutaneous and Ocular Toxicology,vol.15.pp.1–6,2016.

[15] P. Afshar, T. Shokohi , A. Barzgar, Identification of Malassezia species isolated from patients with pityriasisversicolor in Sari, Iran, Jundishapur. J Microbiol,vol.27.pp.4-321,2009.

[16] A. Amer, H. Fischer, X.Li, The natural history of pityriasisrosea in black American children: how correct is the ‘‘classic’’ description? Arch PediatrAdolesc Med,vol.161.pp.503–506,2007.

[17] S. Vano- Galvan, DL. Ma, A. Lopez-Neyra, Atypical Pityriasisrosea in a black child: a case report. Cases J,vol.2.pp.67-96,2009.

[18] G.Kilinc, A.Fadime E.Akbas, C.Ayse, S.Sener, M.Sertac, K.Aktaş, B.Akın, Atypical pityriasisrosea: clinical evaluation of 27 patients. Cutaneous and Ocular Toxicology,vol.3.pp.1–6,2016.

[19] V. Singh, M. Sharma, T. Narang, M. Madan,Vesicular palmoplantarpityriasisrosea. Skinmed,vol.10.pp.116–118,2012.

[20] SB. Miranda, O. Lupi, E.Lucas, Vesicular pityriasisrosea: response to erythromycin treatment. J Eur Acad Dermatol Venereol,vol.18.pp.622–625,2004.

[21] A. Björnberg, E. Tegner, IM. Freedberg,USA, Pityriasisrosea Fitzpatrick's dermatology in general medicine,vol.15.pp.445–50,2003.

[22] MR. Hussein, WM. Abdel-Magid, R. Saleh, E.Nada, Phenotypical characteristics of the immune cells in allergic contact dermatitis, atopic dermatitis and pityriasis rosea. Pathol Oncol Res,vol.15.pp.73–9,2009.